

REMARKS

Upon entry of this amendment, claims 18-22 and 24-38 are present in this application. Claim 18 is an independent claim directed to a method for making sports floors coverings, with the remaining claims depending therefrom. Claim 18 has been amended to incorporate the limitations of claim 23, which has been cancelled without prejudice or disclaimer to the subject matter found therein. Support for the amendments to claim 18 may be found in the claims as originally filed, and in the specification at page 6; therefore, Applicants respectfully submit that no new matter within the meaning of 35 U.S.C. 132 is added by the claim amendment.

The claims have been amended in anticipation that the amendments will place the application in condition for allowance. Based on the claim amendments and remarks below, Applicants respectfully request reconsideration and withdrawal of the outstanding rejections of the claims.

1. Rejection of Claims 18-22, 25-27, 30, 32, 34, and 38  
under 35 U.S.C. § 102(e)

The Official Action states that claims 18-22, 25-27, 30, 32, 34, and 38 are rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,218,500 to Keute et al.

As the basis for this rejection, the Official Action states:

Keute et al. discloses a method of covering a floor with a composition falling within the scope of the instant claims. Organic solvents is not required and any ketone used is removed. The solids content falls within the scope of the instant claims. See the abstract; column 1, lines 44-55; column 3, lines 5-17; column 6, lines 40-45; column 9, lines 50-67; and the remainder of the document. Though "sports floor" is not specified, one can play "sports" on any floor. This preambular phrase therefore does not distinguish over the method of the instant claims. The patentee is silent regarding the particle size of the urethane disclosed therein. The burden is on the applicant to show that it does not inherently possess the claims particle size because its molecular weight and ionic group content would indicate that it would possess a very samll particle size and dispersed urethanes are typically of 20 nm to 5 microns.

The argument regarding the number of steps in making the polyurethane is not persuasive because the instant claims do not exclude such steps. If one includes all of the steps required to make all components of a urethane, there are many steps. The polyurethane of the prior art is NCO free, which is what the instant claims require. THe instant claims encompass copolymers as they are not excluded. The instant claims recite "comprising" and therefore encompass additional steps and ingredients.

Applicants respectfully traverse this rejection. The test for anticipation is whether each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). "The identical invention must be shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir.

1989). The elements must be arranged as required by the claim. *In re Bond*, 910 F.2d 831, 15 USPQ2d 1566 (Fed. Cir. 1990).

The presently claimed invention relates to a method for making sports floors by applying a formulation to a surface. The formulation in the present inventive method comprises aqueous, iso-cyanate-free polyurethane dispersions having a solvent content of less than or equal to 10 percent by weight and a solid matter content of greater than or equal to 30 percent by weight. The formulation also includes the limitation that the polyurethane polymers of said dispersions have an average molecular mass of 25,000 to 100,000 Daltons.

Applicants respectfully submit that the Keute et al. patent fails to disclose all of the limitations as discussed above. In particular, Applicants submit that there is a **substantial difference** between the **pure** polyurethanes used in the present inventive subject matter and the **urethane/epoxy hybrid copolymers** of the Keute et al. patent. One who is skilled in the art will readily differentiate between these two types of polymers. In the view of a skilled person, comparing the polyurethanes of the present claims with the urethane/epoxy hybrid copolymers of Keute et al. is like comparing chalk and cheese, i.e., a skilled person would not make such a comparison.

Due to the fundamental differences between the two types of polymers, the polyurethanes of the present claims may be, if at all, compared to the **urethane oligomers** of Keute et al. However, as the term **oligomer** implies, the urethane species of Keute et al. have an average molecular mass which is considerably below that of the **polyurethane polymers of amended claim 18**. The **oligomers** of Keute et al. preferably have an average molecular mass from about 400 to about 1200 (col. 8, lines 48-49). This represents a difference of more than one magnitude **below the range of the present subject matter as claimed in claim 18**.

Furthermore, Applicants note that it is **only the urethane/epoxy hybrid copolymers** which are used for coatings within Keute et al. (see examples 5-6 of the Keute et al. patent). In fact, the presence of a crosslinking agent, such as an epoxy compound, is conducive to the formation of the coatings (col. 2, lines 50-53). This is reiterated by the coatings prepared in examples 5 and 6, where an epoxy resin as a cross-linking agent is always present.

Even assuming that the polyurethane polymers of claim 18 are comparable to the **urethane/epoxy hybrid copolymers** of Keute et al., the copolymers are still expected **to have a lower molecular mass**

range. Example 5 of the patent describes the process wherein the two solutions (the amide-terminated urethane oligomers and the epoxy resin crosslinking agent) are blended together. This treatment of the amine-terminated urethane oligomers having an average molecular weight typical for oligomers, i.e., in the range of 400 to 1200, **cannot be expected to afford polyurethanes having an average molecular mass as high as is claimed in claim 18.**

In summary, Applicants respectfully submit that the urethane oligomers of Keute et al. are not the same as the polyurethane dispersions as claimed in claim 18 for the reasons given above. As such, Applicants respectfully submit that Keute et al. fail to teach each of the claimed limitations, and thus does not anticipate the claims. Applicants respectfully request reconsideration and withdrawal of the rejection of the claims as being anticipated by the reference.

2. Rejection of Claims 18-38 under 35 U.S.C. § 103(a)

The Official Action states that claims 18-38 are rejected under 35 U.S.C. § 103(a) as being obvious in view of U.S. Patent No. 6,218,500 to Keute et al.

As the basis for this rejection, the Official Action states:

Keute et al. discloses a method of covering a floor with a composition falling within the scope of the instant claims. Organic solvent is not required and any ketone unused is removed. The solids content falls within the scope of the instant claims. See the abstract; column 1, lines 44-55; column 3, lines 5-17; column 6, lines 40-45; column 9, lines 50-67; and the remainder of the document. Though "sports floor" is not specified, one can play "sports" on any floor. This preambular phrase therefore does not distinguish over the method of the instant claims. The patentee is silent regarding the particle size of the urethane disclosed therein. The burden is on the applicant to show that it does not inherently possess the claims particle size because its molecular weight and ionic group content would indicate that it would possess a very small particle size and dispersed urethanes are typically of 20 nm to 5 microns.

It would have been obvious to one skilled in the art at the time of the instant invention to add the additives of the instant claims 24, 28, 29, 31, 34, 35 because these additives will give their well known properties to the polymer matrix of the patentee. It would have been obvious to one skilled in the art at the time of the instant invention to spray the coating of the patentee of the floor because this is a conventional method of coating things with an aqueous dispersion. It would have been obvious to one skilled in the art at the time of the instant invention to use the composition of the patentee as an adhesive according to the instant claim 33 because it is known to be adhesive from column 1, lines 10-13 and its properties such as tensile strength and flexibility would have been expected in the laminate resulting therefrom. It would have been obvious to one of ordinary skill in the art at the time of the instant invention to use the molecular weight of the instant claim 23 because the patentee states that choice of molecular weight is within the ability of the ordinary skilled artisan at column 8, lines 42-48 and molecular weight gives only predictable properties such as viscosity by definition of viscosity average weight and modulus.

The argument regarding the number of steps in making the polyurethane is not persuasive because the instant claims do

not exclude such steps. If one includes all of the steps required to make all components of a urethane, there are many steps. The polyurethane of the prior art is NCO free, which is what the instant claims require. The instant claims encompass copolymers as they are not excluded. The instant claims recite "comprising" and therefore encompass additional steps and ingredients.

Applicants respectfully traverse this rejection. The reference of record does not teach or suggest applicants' inventive subject matter as a whole as recited in the claims. The Examiner has failed to establish a *prima facia* case of obviousness against the presently rejected claims.

To establish a *prima facia* case of obviousness, the PTO must satisfy three requirements. First, the prior art relied upon, coupled with the knowledge generally available in the art at the time of the invention, must contain some suggestion or incentive that would have motivated the skilled artisan to modify a reference. *In re Fine*, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988). Second, the proposed modification of the prior art must have had a reasonable expectation of success, determined from the vantage point of the skilled artisan at the time the invention was made. *Amgen Inc. v. Chugai Pharm. Co.*, 18 U.S.P.Q.2d 1016, 1023 (Fed. Cir. 1991). Lastly, the prior art reference must teach or suggest all the limitations of the claims. *In re Wilson*, 165 U.S.P.Q.2d 494, 496 (C.C.P.A. 1970).

As stated above, presently claimed invention relates to a method for making sports floors by applying a formulation to a surface. The formulation in the present inventive method comprises aqueous, iso-cyanate-free polyurethane dispersions having a solvent content of less than or equal to 10 percent by weight and a solid matter content of greater than or equal to 30 percent by weight. The formulation also includes the limitation that the polyurethane polymers of said dispersions have an average molecular mass of 25,000 to 100,000 Daltons. The remaining claims depend from claim 18 and therefore contain all of the limitations found therein. Thus, if claim 18 is not obvious over the prior art, neither are the remaining claims.

Applicants respectfully submit that Keute et al. do not render the claims obvious. Applicants submit that the coating properties of the **urethane oligomers** of Keute et al. have not been tested. In fact, as is discussed above with respect to the anticipation rejection, Keute et al. indicate that the presence of a crosslinking agent in addition to the urethane oligomers is conducive to the formation of coatings. Therefore, Applicants respectfully submit that one of ordinary skill in the art, in order to use the **polyurethane polymers as claimed**, would have to increase the molecular weight of the **urethane oligomers** by an order greater

than one (that is, from a range of about 400 to 1200 to the claimed range of 25,000 to 100,000). However, Applicants submit that **there is no motivation or suggestion to do such a thing within the Keute et al. reference.** In particular, Applicants submit that the skilled artisan would not expect that the crosslinking agent could be omitted while still maintaining the excellent mechanical properties of coatings needed in formulations suitable for producing sports floor coverings.

Furthermore, Applicants respectfully submit that there is no motivation or teaching within Keute et al. to replace the urethane/epoxy hybrid copolymers with the polyurethanes as claimed in claim 18 (and the remaining dependent claims). This is due to the fundamental differences between the urethane/epoxy hybrid copolymers and the polyurethanes, as detailed above. Also, the urethane/epoxy hybrid copolymers of Keute et al. are definitely **not** applicable to sports floor coverings.

The König hardness of the urethane/epoxy copolymers disclosed in the Keute et al. reference is mentioned in Tables 3 and 6 and the elongation range of these copolymers is mentioned in table 4. The high König hardness and an elongation range as described in Keute et al. indicate that the urethane/epoxy copolymers are completely unsuitable for use as sports floor coverings. In

addition, the urethane/epoxy copolymers of Keute et al. require two weeks of curing time for complete curing (col. 10, lines 6-7), which is also unacceptable for sports floor coverings. In contrast to the copolymers discussed by Keute et al., the polyurethane dispersions used in the present inventive subject matter will dry and cure within two to six hours.

Additionally, the polyurethane dispersions of the present claims may be applied in one component form (bottom of page 14). This is not possible with the copolymers of Keute et al., which require blending and spreading of the two components of the copolymer to form a floor coating (col. 9, lines 46-48). Thus, the present inventive method has another significant advantage over that disclosed in the Keute et al. reference.

Therefore, Applicants respectfully submit that the presently claimed method and formulation will provide suitable for sports floor coverings. The coatings based on the urethane/epoxy copolymers of Keute et al., though, are not suitable for the same due to their inferior mechanical properties. The same inferior qualities also apply to the urethane oligomers discussed by Keute et al., which require the use of a crosslinking agent, such as an epoxy compound, when being used in a coating formulation. These inferior qualities, combined with the lack of motivation or

teaching to alter the Keute et al. reference and the additional advantages obtained by the present claims, render the claims unobvious over the Keute et al. reference.

In summary, Applicants respectfully submit that a *prima facia* case of obviousness has not been established because the cited reference does not teach or suggest each and every claimed limitation. Further, one of ordinary skill in the art would not have been motivated to modify the Keute et al. reference to make the presently claimed invention as alleged by the Examiner. Based on the copolymers and oligomers disclosed in Keute et al., the elongation, shorter required drying and hardening times, and the possibility of applying only one component of the present invention would not have been obvious.

Accordingly, applicants respectfully request the Examiner to reconsider and withdraw the rejection of claims 18-38.

#### CONCLUSION

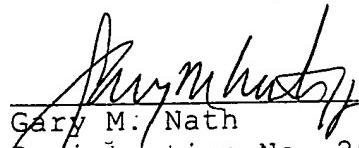
Claims 18-22 and 24-38 are currently pending in the present application. Applicants respectfully request the Examiner to reconsider and withdraw the rejections and allow all claims pending herein.

The Examiner is requested to contact the undersigned attorney

if he has any questions or wishes to further discuss the merits of the presently pending claims.

Respectfully submitted,  
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